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| EXAMINER | |
|---|---|
| BHAT, NARAYAN KAMESHWAR | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/540,208 | GUMBRECHT ET AL. | |
| | Examiner | Art Unit | |
| | NARAYAN K. BHAT | 1634 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,5-8 and 10-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-8 and 10-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

**FINAL ACTION**

1. This action is in response to papers filed on June 23, 2009. Claims 1 and 10 are amended and claim 9 is cancelled. Applicant's amendments to claim 1 requiring the hydrophilic reaction layer being a hydrogel including a crosslinking agent necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL.**

***Claim Status***

2. Claims 1, 5-8 and 10-15 are pending in this application and are under examination.

3. Amendments to claims 1 and 10 have been reviewed and entered.

4. Applicant's arguments filed on June 23, 2009 have been fully considered and are addressed following claim rejections.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 5-6, 8 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albers et al (USPN 7,208,077 issued Apr. 24, 2007 and WO 00/62048, published Oct. 19, 2000) in view of Johnson et al (USPN 6,372,813 issued Apr. 16, 2002). USPN '077 is deemed a translation because of the 371 status.

***Previous rejections are maintained and new limitations of amended claims are discussed below.***

Claim 1 recites following structural components: a) a flat carrier, b) a hydrophilic reaction layer including a crosslinking agent, c) a microelectrode arrangement partially embedded in a hydrophilic reaction layer for detecting binding element and d) an array of spots containing catcher molecules distributed three dimensionally,.

Regarding structural component 'a', Albers et al teaches a DNA chip comprising a flat carrier1 (Fig. 1a, column 5, lines 37-38).

Regarding structural component 'b', Albers et al teaches a hydrogel layer (column 16, lines 15-18), which is hydrophilic reaction layer as defined in the instant claim. Albers et al do not teach hydrogel includes a crosslinking agent.

Regarding structural component 'c', Albers et al teaches a microelectrode arrangement 3a and 3a' in an array position 4 (Fig. 1a, column 9, lines 18-20) for detecting binding events between the catcher molecules and target molecules (Abstract, column 16, lines 14-22). Albers et al also teaches that the electrodes are embedded in a hydrogel, i.e., hydrophilic reaction layer (column 16, lines 14-18).

Regarding structural component 'd', Albers et al teaches affinity binding molecules (i.e., catcher molecules) are incorporated into hydrogel layer covering the microelectrode and further teaches that the microelectrodes 3a are arranged in an array format (Fig. 1d, column 16, lines 5-8), which encompasses array of spots containing catcher molecules and each spot being assigned to a microelectrode arrangement. Albers et al also teaches that catcher molecules incorporated in the gel are permeable to both targets and reagents (column 15, lines 21-27 and column 16, lines 5-8), which encompasses that the immobilized catcher molecules are distributed three-dimensionally.

Albers et al also teaches that the electrode has a width of 1 micrometer and the spacing of 0.9 micrometer (column 26, lines 35-37) and covered with hydrogel (column 16, line 18). Albers et al do not teach the reaction layer thickness between 2 um to 10 um.

Regarding claim 5, Albers et al teaches an interdigital electrode arrangement comprising two annular ultra microelectrodes 3a and 3a' (Fig. 1c) and a connecting path 6 (Fig. 1c) on a flat carrier 1s (Fig. 1c). Albers et al also teaches a potentiostat 34(Fig. 6) and microcontroller/PC (Fig. 6), thus teaching the interdigital electrode arrangement

and system. Instant specification defines a 2-pole electrode arrangement as two electrodes on a flat carrier forming an interdigital structure connected to one another by connecting conductor (i.e., connecting path, instant specification paragraph 0025). The interdigital electrode arrangement system of Albers et al is reasonably interpreted as a two-pole system of the instant claim. Albers et al do not teach that the reaction layer having a thickness of approximately 3 um.

Regarding claim 6, Albers et al teaches an interdigital electrode arrangement comprising two ultra microelectrodes 3 and 3' (Fig. 2c) and pair of auxiliary electrodes 3b and 3c (Fig. 2a, column 8, lines 35-65), and potentiostat 34 (Fig. 6) and microcontroller/PC (Fig. 6), thus teaching the interdigital electrode arrangement and system. Albers et al also teaches that ultra microelectrodes are sensor electrodes (column 5, lines 15-25) and auxiliary electrodes are voltage electrodes (column 23, lines 30-31). Instant specification defines a 4-pole electrode arrangement as two current electrodes and two voltage electrodes (paragraph 0037). The interdigital electrode arrangement system comprising sensor and voltage electrodes of Albers et al is reasonably interpreted as a 4-pole system of the instant claim. Albers et al do not teach that the reaction layer having a thickness of approximately 7 um.

Regarding claim 8, Albers et al teaches that catcher molecules are incorporated into the gel (column 16, line 5) but do not teach that the reaction layer containing coupling groups for the covalent binding of catcher molecules.

Regarding claim 10, Albers et al teaches a hydrogel layer (i.e., hydrophilic reaction layer), but do not teach that the hydrogel is an acrylamide based radical crosslinkable hydrogel comprising one of maleic anhydride and glycidyl methacrylate.

Regarding claim 11, Albers et al teaches that the electrode arrangement is an interdigital electrode arrangement (Fig. 1, column 7, lines 39-41).

Regarding claim 12, Albers et al teaches an interdigital electrode arrangement comprising two annular ultra microelectrodes 3a and 3a' (Fig. 1c) and a connecting path 6 (Fig. 1c) on a flat carrier 1s (Fig. 1c). Albers et al also teaches a potentiostat 34(Fig. 6) and microcontroller/PC (Fig. 6), thus teaching the interdigital electrode arrangement and system. Instant specification defines a 2-pole electrode arrangement as two electrodes on a flat carrier forming an interdigital structure connected to one another by connecting conductor (i.e., connecting path, instant specification paragraph 0025). The interdigital electrode arrangement system of Albers et al is reasonably interpreted as a two-pole system of the instant claim.

Regarding claim 13, Albers et al teaches an interdigital electrode arrangement comprising two ultra microelectrodes 3 and 3' (Fig. 2c) and pair of auxiliary electrodes 3b and 3c (Fig. 2a, column 8, lines 35-65), and potentiostat 34 (Fig. 6) and microcontroller/PC (Fig. 6), thus teaching the interdigital electrode arrangement and system. Albers et al also teaches that ultra microelectrodes are sensor electrodes (column 5, lines 15-25) and auxiliary electrodes are voltage electrodes (column 23, lines 30-31). Instant specification defines a 4-pole electrode arrangement as two current electrodes and two voltage electrodes (paragraph 0037). The interdigital electrode

arrangement system comprising sensor and voltage electrodes of Albers et al is reasonably interpreted as a 4-pole system of the instant claim.

Regarding claim 14, Albers et al teaches a DNA chip that includes a planar substrate, i.e., flat carrier 1(Fig. 1a, column 5, line 37), which includes a silicon substrate, i.e., semiconductor layer 1s (Fig. 1d, column 9, lines 30-31) and an insulating layer 7 connected thereto (Fig. 1d, column 9, line 30) and the insulating layer carrying the electrode arrangement 3a and 3a' (Fig. 1d). Albers et al teaches that catcher molecules incorporated in to the hydrogel layer in the volume compartment of the electrode 3a and 3a' (Fig. 1d, column 15, lines 21-27 and column 16, lines 5-8). Albers et al also teaches that an insulating layer 7 is between the electrode and the semiconductor layer 1s (Fig. 1d, column 10, line 33), thus teaching hydrogel, i.e., reaction layer is remote form the semiconductor layer.

Regarding claim 15, Albers et al teaches that the semiconductor layer is a silicon layer 1s (Fig. 1d, column 9, lines 30-31).

As described above, regarding claims 1 and 5-6, Albers et al do not teach the reaction layer thickness and reaction layer includes a crosslinking agent.

Regarding claim 8, Albers et al do not teach the reaction layer containing coupling groups for the covalent binding of catcher molecules.

Regarding claim 10, Albers et al do not teach hydrogel layer (i.e., hydrophilic reaction layer is an acrylamide based hydrogel including one of maleic anhydride or glycidyl methacrylate.

However, the reaction layer composition, coupling groups for covalent binding of catcher molecules and thickness were known in the art at the time of the claimed invention was made as taught by Johnson et al.

Johnson et al teaches a biochip comprising a polymer hydrogel arrays, wherein thickness of the hydrogel layer (i.e., reaction layer) is between about 1um and about 40 um or preferably between about 3 and 30 um and optimally about 5 um (column 5, lines 31-37). The thickness of hydrogel layer (i.e., hydrophilic reaction layer) of 5 um is encompassed by the thickness between 2 um to 10 um or thickness of approximately 3 or 7 um as claimed.

Johnson et al also teaches that the acrylamide based radical cross-linkable hydrogel includes glycidyl methacrylate (column 13, lines 23-26) and further teaches that the hydrogel includes a cross linking agent (column 10, lines 15-23 and column 13, lines 64-67). Johnson et al also teaches that reaction layer comprises either maleimide (Fig. 3, column 3, lines 53-57) or acrylate (Fig. 4, column 3, lines 58-61) coupling groups for the covalent binding of DNA molecules (i.e., catcher molecules, column 16, lines 59-65).

Johnson et al also teaches that the hydrogel pads are easy to produce, economical, reduces the biochip manufacturing cost, enhances the throughput and cross-linking of the hydrogel and attachment of biomolecules are done in a single step (column 3, lines 19-25 and 37-44).

It would have been prima facie obvious to one having ordinary skill in the art at the time the invention was made to modify the reaction layer of Albers et al with

hydrogel of varying thickness of Johnson et al with a reasonable expectation of success.

An artisan would have been motivated to modify with the expected benefit of having a hydrogel pads that are easy to produce, economical, which reduces the biochip manufacturing cost, enhances the throughput and performing cross-linking of the hydrogel and attachment of biomolecules in a single step as taught by Johnson et al (column 3, lines 19-25 and 37-44).

8. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albers et al (WO 00/62048, published Oct. 19, 2000) in view of Johnson et al (USPN 6,372,813 issued Apr. 16, 2002) as applied to claim 1as above and further in view of Valint et al (USPG PUB 2002/0102415 published Aug. 1, 2002).

Claim 7 is dependent from claim 1. Teachings of Albers et al and Johnson et al regarding claim 1 are described above in section 7.

Regarding claim 7, Albers et al teaches that biochip comprising hydrogel is used at $40^0$ C (column 30, lines 65-67). Albers et al and Johnson et al do not teach thermal stability. However, thermal stability of hydrogel was known in the art at the time of the claimed invention was made as taught by Valint et al.

Valint et al teaches a hydrogel polymer layer on the electrode surface and further teaches that the hydrogel polymer layer is resistant to heat up to $90^0$ C (paragraphs 0147, 0148, 206 and 0217), which encompasses reaction layer thermally stable up to approximately $95^0$C. Valint et al further teaches that hydrogel having thermal stability is

sterilized easily using conventional autoclave without changes in its property (paragraph 0152, Table 13).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to modify the hydrogel of Albers et al and Johnson et al with the thermally stable hydrogel of Valint et al with a reasonable expectation of success.

An artisan would have been motivated to modify the hydrogel of Albers et al and Johnson et al with the expected benefit of sterilizing hydrogel using conventional autoclave, still retaining its property as taught by Valint et al (paragraph 0152).

***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 5-8 and 10-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of USPN 7,572,624 in view of Johnson et al (USPN 6,372,813 issued Apr. 16, 2002) and Valint et al (USPG PUB NO. 2002/0102415 published Aug. 1, 2002). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

Regarding instant claim 1, claims 1, 8-10 and 17 of the '624 patent are drawn to a DNA chip comprising a carrier, a microarray of spots arranged on the carrier, containing immobilized catcher molecules, each spot containing a thin-film four –pole system configured to measuring binding events between the catcher molecule and target analytes. Claims 8-10 and 17of the '817 copending application are further drawn to thin-film microelectrode system embedded in a hydrophilic reaction layer having thicknesses the range of 1L to 5L, L being the sum of electrode width and electrode spacing with a reaction layer thickness of less than 100 um.

Claims of '624 patent are not drawn to the reaction layer having thickness between 2 um and 10 um. However, as described above in section 7, Johnson et al teaches a biochip comprising a polymer hydrogel arrays, a cross linking agent for enhancing throughput wherein thickness of the hydrogel, i.e., reaction layer is between about 1 and about 40 um or preferably between about 3 and 30 um and optimally about 5 um (column 5, lines 31-37), which encompasses the thickness between 2 um to 10 um. As described above in sections 7 and 8, additional limitations of instant dependent

claims 5-8 and 10-15 are taught by Johnson et al and Valint et al and therefore obvious over claims 1-18 of the '624 patent in view of Johnson et al and Valint et al.

11. Claims 1, 5-8 and 10-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-15 and 19 of copending Application No. 10/539,437 in view of Albers et al (WO 00/62048, published Oct. 19, 2000), Johnson et al (USPN 6,372,813 issued Apr. 16, 2002) and further in view of Valint et al (USPG PUB NO. 2002/0102415 published Aug. 1, 2002).

Regarding instant claim 1, claims 11 and 15 of the '437 copending application are drawn to a DNA chip comprising a carrier, an array of spots arranged on the carrier comprising microelectrodes and further drawn to array of spots are covered by the hydrophilic reaction layer. Claims of '437 are not drawn to the reaction layer having thickness between 2 um and 10 um and catcher molecules on the microelectrode arrangement. However, as described above in section 7, Albers et al teaches microelectrode arrangement with catcher molecules for detection of target molecules (column 16, lines 5-22). Johnson et al teaches a biochip comprising a polymer hydrogel arrays and crosslinking agent for increasing throughput, wherein thickness of the hydrogel, i.e., reaction layer is between about 1 and about 40 um or preferably between about 3 and 30 um and optimally about 5 um (column 5, lines 31-37), which encompasses the thickness between 2 um to 10 um.

As described above in sections 7 and 8, additional limitations of dependent claims 5-8 and 10-15 are taught by Albers et al, Johnson et al and Valint et al. Hence,

instant dependent claims 5-8 and 10-15 are obvious over claims 11-15 and 19 of the '437 copending application in view of Albers et al, Johnson et al and Valint et al.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

**Response to Remarks from the Applicants**

***Claim Rejections under 35 U.S.C. § 103(a)***

12. Applicant's arguments filed June 23, 2009 with respect to claims 1, 5, 6, 8 and 10-15 as being unpatentable over Albers in view of Johnson have been fully considered (Remarks, section III). These arguments are not persuasive for the following reasons.

Applicants argue that Albers and Johnson fail to teach the hydrophilic reaction thickness between 2 um and 10 um and hydrogel includes a cross linking agent (Remarks, section III subsection i). Applicants acknowledges that Johnson teaches hydrogel having a thickness of 5 um (Remarks section III a). However, Applicants assert that Johnson teaches a chip without electrode and offers no suggestion for electrode having a layer of hydrogel. Applicants further assert that the thickness of the hydrogel layer depends on the electrode size and spacing for increasing the sensitivity of a sensor (Remarks, section III a, paragraph 2). Applicant further argues that the combination of Johnson and Albers would produce a variety of different chip arrangements (Remarks, section III a, paragraph 2).

The arguments are not persuasive because as described above in section 7, Albers teaches electrode size, spacing, hydrogel layer and Johnson teaches hydrogel

layer of 5 um thickness, which is in the claimed range. Therefore Albers and Johnson teach the structural components of the DNA chip as claimed. Applicants have provided any factual evidence to support the asserted "variety of different chip arrangements" resulting from the combination of Johnson and Albers. For above reasons arguments are not persuasive.

Applicants further argue that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (Remarks, section III a, paragraph 3). This argument is not persuasive because any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper (See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971)). As described above Albers teaches hydrogel layer on the electrode and Jonson teaches hydrogel thickness of 5 um (column 5, lines 31-41). Johnson further suggests thickness of the hydrogel layer can be varied dependent upon the needs of the user (column 5, lines 28-31) for enhancing throughput (column 3, lines 22-23), thus providing suggestions and motivations for using hydrogel layer thickness for increasing the sensitivity of the DNA chip of Albers. For these reasons arguments are not persuasive.

Applicants further argue that Johnson teaches photoreaction but does not teach crosslinking agent as claimed (Remarks, section III a, paragraph 4). This argument is not persuasive because as described above in section 7, Johnson explicitly teaches

"crosslinking agent" (column 4, line 33). It is maintained that Albers and Johnson teaches all structural components of the DNA chip as claimed.

Applicant's request for clarification of previous rejection of claim 7 is noted. Because claim 7 depends from claim 1, claim 7 includes all the elements of claim 1. Therefore the rejection of claim 7 includes the elements of claim 1 as set forth above in section 8.

Applicants further argue that the combination of Albers, Johnson and Valint fails to teach or otherwise suggest the feature recited in amended claim 7 (Remarks, section III b i) because Valint teaches a silicon hydrogel contact lenses and plasma treatment (Remarks, section III b subsection a, paragraph 4). From this Applicant assert that one of ordinary skill in the art would not look to Valint to cure the deficiency of Johnson and Albers. This argument is not persuasive because as described above in section 8, Valint et al teaches a hydrogel polymer layer on the electrode surface (paragraphs 0147 and 0148) and further teaches that the hydrogel polymer layer is resistant to heat up to approximately $95^0$C (paragraphs 206 and 0217). Furthermore, instant claim 7 as recited merely requires a thermally stable reaction layer, which is taught by Valint. Therefore arguments are not persuasive.

***Double Patenting***

13. It is noted that Applicants have requested that ODP rejections be held in abeyance until allowable subject matter is identified in the instant application or in the copending '437 and '817 application (Remarks, section IV). It is also noted that '817

copending application is now US Patent 7,572,624 and claims of '437 copending application is allowed. The ODP rejections are maintained.

***Conclusion***

14. No claims are allowed.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Narayan K. Bhat whose telephone number is (571)-272-5540. The examiner can normally be reached on 8.30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on (571)-272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Narayan K. Bhat

Examiner, Art Unit 1634

/BJ Forman/

Primary Examiner, Art Unit 1634